

REMARKS

The present invention relates to a curable composition.

Applicant timely filed an Amendment under 37 C.F.R. § 1.116 on February 2, 2010 in response to the final Office Action dated November 5, 2010 however, based on the Advisory Action issued March 1, 2010, the Amendment under 37 C.F.R. § 1.116 was not entered.

Applicant therefore accordingly submits this Amendment under 37 C.F.R. § 1.114(c), which includes the amendments to the claims that were present in the non-entered 1.116 Amendment, and additional amendments to the claims, including further amendments to claim 1, further amendments to claims 11 and 12 consistent with the amendment of claim 1, cancellation of claims 10, 13 - 15, and 19, and new claim 24.

The further amendments are supported by the disclosure in the specification, e.g., paragraph [0112] of the published application, Synthesis Example 8, paragraph [0100], and Synthesis Example 9.

As previously noted, the amendments to the claims have obviated the earlier rejection under 35 U.S.C. § 112, first paragraph, leaving only the prior art rejections based on the Yukimoto reference (US Patent 4,983,700).

Applicant explains in further detail below how the present claims distinguish over the Yukimoto reference and are non-obvious in view thereof.

First, it is noted that in independent claim 1, it has been not only further recited that the organic polymer (B) contains an average of 1.5 to 1.0 reactive silyl groups, and that the main chain of each of the organic polymers (A) and (B) is an oxyalkylene polymer, but furthermore it is specified that the molecular weight of the organic polymer (B) is lower than the molecular weight of the organic weight (A) by not less than 3000.

The curable composition of the present invention according to amended claim 1 has, *inter alia*, the following distinctive technical features.

A **first** is that the curable composition comprises the organic polymer (A) containing reactive silyl groups represented by the general formula (1) given above wherein *a* is 3, and the organic polymer (B) containing an average of 0.5 to 1.0 reactive silyl groups represented by the general formula (1) given above per molecule, and a **second** is that the main chain of each of the organic polymers (A) and (B) is the oxyalkylene polymer.

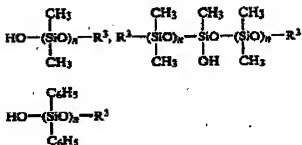
Therefore, amended claim 1 has incorporated the technical features of previous claims 5 and 22.

In general, cured products obtained from an organic polymer having reactive silyl groups containing three hydrolysable groups per silicon atom tend to be very fragile and low in extensibility. Further, when the molecular weight is increased to secure the extensibility, a problem of viscosity increase arises. Thus, it has been earnestly desired that the cured products derived from an organic polymer having reactive silyl groups containing three hydrolysable groups per silicon atom be improved in mechanical physical properties and reduced in viscosity (see e.g., paragraphs [0005] and [0006] in the present specification).

It is an object of the present invention to provide a reactive silyl group-containing room temperature curable composition which can give cured products having good recovery, durability and creep resistance and the mechanical physical properties of which can be adjusted so as to be adequate for the use as a sealing material or adhesive and, further, which is low in viscosity and good in workability. This is achieved by the presently claimed invention, as described below.

Since the curable composition of the present invention employs a combination of the oxyalkylene polymer (A) containing a reactive silyl groups represented by the formula (1) given above wherein a is 3, and the oxyalkylene polymer (B) containing an average of 0.5 to 1.0 reactive silyl groups represented by the general formula (1) given above per molecule, the presently claimed curable composition can achieve the noted objects of the present invention.

Concerning previous claim 22, the Examiner had indicated that Yukimoto discloses the following formulas as examples of the compound having one silanol group



wherein R³ is an alkyl group of 1-20 carbons and n is 0 to 40. The Examiner asserted that the examples above show that the number of reactive silyl groups falls within the claimed range.

I.e., the Examiner's position appears to be that the above-noted compounds of Yukimoto correspond to the organic polymer (B) of present invention.

However, Applicant must observe that the above-noted compound of Yukimoto is a polysiloxane.

Further, Yukimoto discloses that the polymer (A) has 1.1, preferably 1.5 to 4 silicon-containing reactive groups on the average in a molecule (see column 4, lines 13-15). Therefore, Yukimoto does not teach and suggest using the oxyalkylene polymer (B) containing an average of 0.5 to 1.0 reactive silyl groups represented by the general formula (1) given above per molecule, in order to achieve the objects of the present invention.

Since the curable composition of Claim 1 has the above-noted technical feature, the viscosity reducing effect is achieved (see paragraph [0112]). Moreover, it is clear from the results of Examples 6, 7 and Comparative Example 9.

On the other hand, the Yukimoto reference does not teach, suggest, motivate, or provide other reason for using the above-mentioned organic polymers (A) and (B) in order to achieve the viscosity reducing effect.

Therefore, Applicant respectfully submits that Claim 1 has novelty and unobviousness over the Yukimoto reference. Accordingly, Claim 1 is respectfully submitted to be patentable.

Applicant further notes, the curable composition of new Claim 24, which comprises an organic polymer (A) containing reactive silyl groups represented by the general formula (1) given below wherein a is 3 and a hydrocarbon compound containing 1 to 20 carbon atoms and an average of 0.5 to 1.0 reactive silyl groups represented by the general formula (1) given below per molecule



wherein R¹ represents an alkyl group containing 1 to 20 carbon atoms, an aryl group containing 6 to 20 carbon atoms, an aralkyl group containing 7 to 20 carbon atoms or a triorganosiloxy group represented by (R')₃SiO- (in which the three R' groups may be the same or different and each represents a monovalent hydrocarbon group containing 1 to 20 carbon atoms) and, when there are two or more R¹ groups, they may be the same or different, and X represents a hydroxyl group or a hydrolysable group and, when there are two or more X groups, they may be the same or different, and a represents 2 or 3.

In contrast, the Yukimoto reference does not teach or suggest using the above-mentioned hydrocarbon compound as a component of the curable composition.

Therefore, Applicant respectfully submits that Claim 24 is also novel and unobviousness over Yukimoto.

Applicant furthermore observes that with respect to the analysis set forth in the Advisory Action of March 1, 2010, and it is appreciated in this regard that Examiner Moore was just assigned responsibility for this application, the analysis is in error with respect to the point that the Examiner addressed, in that the prior art requires an average of at least 1.1 reactive silyl groups, which is clearly distinguished over by the amendment of claim 1 that organic polymer (B) contains an average of 0.5 to 1.0 reactive silyl groups (that is, the upper limit is 1.0, where as the minimum of the Yukimoto reference is an average of 1.1, and preferably higher. Of course,

the forgoing point that was addressed in the Advisory Action did not take into account the other limitations that have been introduced into claim 1, e.g., requiring that the main chain of each of organic polymers (A) and (B) is an oxyalkylene polymer.

Applicant's representative would be glad to discuss these distinctions with the Examiner in further detail and the Examiner is requested to contact the undersigned attorney and the local Washington D.C. telephone number indicated below, if the Examiner may continue to believe that the present claims do not distinguish over the Yukimoto reference.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby earnestly solicited.

If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned attorney at the local Washington D.C. telephone number listed below.

AMENDMENT UNDER 37 C.F.R. § 1.114(c)
U.S. Application No.: 10/587,196

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Respectfully submitted,



Joseph F. Ruch, Jr.
Registration No. 26,577

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE

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CUSTOMER NUMBER

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